6-2: The student will demonstrate an understanding of structures, processes, and responses of plants that allow them to survive and reproduce.

Key Concepts:
Organism characteristics: stimulus, response, asexual reproduction, sexual reproduction, growth, development,
Taxonomy: kingdoms, species, scientific name
Plant Classification: vascular, nonvascular, seed-producing, spore-producing flowering, cone-bearing, monocot or dicot plants
Plant structures: flowering plant, flower
Life Cycle: germination, plant development, pollination, fertilization, seed production
Plant processes: photosynthesis, respiration, transpiration
Fungi: plant diseases

Supporting Content Web Sites

Living and Non-living Things
http://www.learner.org/channel/courses/essential/life/session1/index.html
This website helps students to increase their understanding of living and nonliving organisms and the characteristics of life.
6-2.1

Science Online
http://classroom.jc-schools.net/sci-units/plants-animals.htm#5
This website identifies the characteristics that enable a specific plant and/or animal to survive.
6-2.1

The Six Kingdoms
http://www.ric.edu/ptiskus/Six_Kingdoms/Index.htm
This website discusses the six kingdoms.
6-2.2

Classifying Critters
http://www.hhmi.org/coolscience/critters/critters.html
This website allows students match critters based on physical features using multiple-choice format.
6-2.2

Taxonomy, Systematics and Classification
http://www.geol.lsu.edu/Faculty/Hart/NOTES/taxonomy.htm
This website provides information on the naming and classification of organisms.
6-2.2

The Plant Kingdom
http://www.perspective.com/nature/plantae/index.html
This website describes the characteristics of the four types of plant structures.
6-2.3

Parts of a Flower
http://www.botany.uwc.ac.za/ecotree/flowers/flowerparts.htm#top
This interactive website will allow to learn the parts of a flower by playing the game. On successful completion, the diagram will be in color.
6-2.4; 6-2.5; 6-2.6

Plants
http://www.biology4kids.com/files/plants_main.html
This website offers an introduction to plants. Topics include basic structure, xylem-phloem, reproduction, angiosperm and gymnosperm.
6-2.4; 6-2.5; 6-2.6

Photosynthesis and Transpiration
http://www.cornwallwildlifetrust.org.uk/educate/kids/photsyn.htm
This website discusses the process of photosynthesis and transpiration. The diagrams can be enlarged for easy viewing.
6-2.7

Plants in Motion
http://plantsinmotion.bio.indiana.edu/plantmotion/starthere.html
This website uses time-lapse photography to show tropic responses in plants.
6-2.8

Suggested Literature

Fullick, A. (2006*). Life science in depth: adaptation and competition*. Chicago: Heinemann Library
ISBN 1403475180
This book provides information about how animals and plants change and avoid competition to stay alive and to reproduce.
6-2.1; 6-2.7

Fullick, A. (2006). *Life science in depth: variation and classification*. Chicago: Heinemann Library
ISBN 1403475245
This book provides an in-depth look at variety of plant and animal life and how they are classified into groups.
6-2.2

Hickman, P. (2000). *Starting with nature: plant book*. Tonawanda, NY:
Kids Can Press Ltd.
ISBN 1-55074-483-6
The focus of this book is on the functions of plants--pollination, seed growth, and flowers.
6-2.5

Kneidel, S. (2001*). Skunk cabbage, sundew plants & strangler figs*. New York:
John Wiley And Sons, Inc.
ISBN 0-471-35713-8
This book provides background information about a variety of plants. Topics of discussion include why we need plants, the difference between cone-bearing and flowering plants, how plants reproduce, and the functions of the different parts of plants.
6-2.3

Morgan, S. (2006). *Life science in depth: green plants*. Chicago: Heinemann Library
ISBN 14034752
This book provides information on cells, photosynthesis, and types of plants as well as plants as food and energy sources.
6-2.3; 6-2.7

Parramon Editorial Team (2004). *Essential atlas of botany*. Hauppauge, NY:
Barron's Educational Series, Inc.
ISBN 0764127098
This book provides information about the anatomy and physiology, reproduction, ecology and the environmental adaptations of plants.
6-2.3

Pascoe, E. (1999). *Nature close-ups: seeds and seedlings*. Woodbridge, CT: Blackbirch Press
ISBN 1-56711-178-5
This book provides a description of the physical structures of plants and seeds. Information on plant reproduction, how seeds grow, and how they travel are also included.
6-2.5

Patent, D. (2002). *Plants on the trail with lewis and clark.* New York:
Houghton Mifflin Co.
ISBN 0-618-06776-0
This book describes Lewis and Clark's journey as they observed, collected, and catalogued unknown plant life.
6-2.2

Ray, D. (2004). *Flower hunter: William Bartram, america's first naturalist*. New York:
Farrar, Straus & Giroux, Inc.
ISBN 0374345899
The journey of William Bartram is told through journal entries. Pictures of some of the plants discovered by Bartram are also included.
6-2.3

Spiraling through life with fast plants: an inquiry-rich manual. Dubuque, IA: Kendall/Hunt Publishing Co. ISBN 0-7872-6910-7
This book provides information about the Wisconsin Fast Plants. Topics of discussion include germination, growth and development, flowering, pollination, and production of seeds.
6-2.5

Suggested Streamline Video

The Basics of Biology: What is Life?
This video allows viewers to see and hear about the characteristics of all living things and how they contrast to characteristics of nonliving things.
ETV Streamline SC
11:37
6-2.1

The Basics of Biology: How Living Things are Classified
This video demonstrates that in recognizing certain patterns by classification, living things can be separated into five distinct kingdoms. Additionally, by classifying the animals, students learn how each living thing can be placed into a distinct phylum or division, class, order, family, genus, and species.
ETV Streamline SC
20:07
6-2.2

Classification of Living Things
A routine castle tour turns enchanting when King Philip shows up to teach a lesson in classification. Using examples from his castle, mnemonics for memorizing the 7 levels of classification, microscopic footage, and animation, King Philip makes sense of difficult concepts. From simple examples to an exploration of each of the five kingdoms, this tour provides a concrete foundation for a complex subject.
ETV Streamline SC
27:00
6-2.2

The Basics of Biology: The Kingdom of Plants
This video examines the major branches of the plant kingdom. Starting with one-celled plant-like protists, students learn the role of photosynthesis in producing food and oxygen. Important characteristics and developmental trends are revealed as the program looks at a variety of living things. Students also discover the life cycle of a fern, how seeds form in a lily by pollination, and how bean seeds grow to mature seed.
ETV Streamline SC
17:48
6-2.3

Biology: The Science of Life: The World of Plants
Plants That Make Spores: Mosses, Ferns, Liverworts, and Horsetails
This video segment presents the characteristics of spore-producing plants.
ETV Streamline SC
4:20 to 6:53
6-2.3

Biology: The Science of Life: The World of Plants
Plants That Make Seeds: Gymnosperms and Angiosperms
This video segment presents the characteristics of seed-producing plants.
ETV Streamline SC
6:54 to 8:53
6-2.3

Adapting to the World
The Bloom of Plants
This video segment follows the processes of plant reproduction and survival.
ETV Streamline SC
6:13 to 11:31
6-2.4

Biology: The Science of Life: The World of Plants
The Life Cycle of a Flowering Plant
Making Eggs
Making Pollen
Pollination and Fertilization
Germination and Growth
The video segments summarize each process in the life cycle of a flowering plant.
ETV Streamline SC
8:54 to 13:57
6-2.5

Biology: The Science of Life: Making New Life: The Basics of Reproduction
Asexual and Sexual Reproduction
This video segment differentiates between the process of sexual and asexual reproduction.
ETV Streamline SC
1:14 to 2:35
6-2.6

Biology: The Science of Life: The World of Plants
Photosynthesis
This video segment summarizes the process of photosynthesis
ETV Streamline SC
1:59 to 4:19
6-2.7

Career Connections

Biochemist
Biochemists study the chemical composition of living things. They analyze the complex chemical combinations and reactions involved in metabolism, reproduction, growth, and heredity. (6-2)

Botanist
Botanists study plants and their environment. Some study all aspects of plant life, including algae, fungi, lichens, mosses, ferns, conifers, and flowering plants; others specialize in areas such as identification and classification of plants, the structure and function of plant parts, the biochemistry of plant processes, the causes and cures of plant diseases, the interaction of plants with other organisms and the environment, and the geological record of plants. (6-2)

Plant Physiologist
Plant physiologists study life functions of plants both in the whole organism and at the cellular or molecular level, under normal and abnormal conditions. Plant physiologists often specialize in functions such as growth, reproduction, photosynthesis, and respiration. (6-2)

Plant Cytologist
Plant cytologists study the structure, function, and life history of plant cells. (6-2)

Plant Geneticist
Plant geneticists study plant heredity and variation. Plant geneticists study genes and gene function in plants. (6-2)